



ADDRESS REPLY TO:
THE CHIEF, DEFENSE ATOMIC
SUPPORT AGENCY

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DEPARTMENT OF DEFENSE
DEFENSE ATOMIC SUPPORT AGENCY
WASHINGTON 25, D.C.

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NOTE 20 JAN DATE
FOR SUBMISSION TO TTP
20 DEC 1962

DASATP/926

SUBJECT: Nuclear Weapons Effects Research (NWER) Semi-Annual Progress
Summary (RCS: HQDASA-78)

TO: Chief of Research and Development, Department of the Army,
ATTN: Atomic Division
Chief of Naval Operations, Navy Department, ATTN: OP-75
HQUSAF (AFRDC-NE)

1. Reference SECRET-RD book, Headquarters, Defense Atomic Support Agency, RCS: HQDASA-78, 1 October 1962, subject: "Nuclear Weapons Effects Research Semi-Annual Progress Summary," with addendum, 1 November 1962.
2. Referenced document is a compilation of all the NWER progress summaries received for the reporting period 1 January 1962 through 30 June 1962.
3. The fourth semi-annual progress summary (DASA-78) will be published in March 1963. Addressees are requested to insure that laboratories under their control submit reports for inclusion in this summary by 20 January 1963.
4. A close perusal of the reference will disclose several subtask omissions. It is believed these are caused by a misunderstanding on the part of the agency or laboratory responsible for submitting reports. The purpose of the DASA-78 is to furnish all interested and authorized personnel with a brief non-technical summary of work being pursued in the Nuclear Weapons Effects area. DASA requires a report in the next summary following the issuance of funds and all subsequent summaries until the work is completed or halted. The last report must announce termination and the reason. The reason for this procedure becomes apparent when it is realized that many interested people not working in the effects area have very limited contact with research in progress. Through the DASA-78 they can follow progress and then write for a technical report at the appropriate time.

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DATE: 8/19/94

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Summary (RCS: HQDASA-78)

5. Inclosure 1 contains a list of all active subtasks. It is realized some of these were not funded in this fiscal year; however, if the principal investigator has not filed a final report they must still be considered active.

6. Reporting is governed by the following considerations:

a. All subtasks for which funds have been advanced must be reported unless they have been terminated by a report in a previous DASA-78.

b. Subtasks may be terminated for any of the following reasons:

- (1) Completion of work.
- (2) Cancellation of funding by DASA.
- (3) Reprogramming of funds.
- (4) Combining two or more subtasks.

7. Inclosure 2 contains the report format used in all issues to date together with a description of the material to be included. It is requested that reporting laboratories utilize this format.

8. The reporting period for this next progress report is 1 July 1962 to 31 December 1962. Request all reports be forwarded to Chief, DASA ATTN: DASATP by 20 January 1963. Recommended additions and/or deletions to the distribution list beginning on page 358 of the reference will be welcome.

FOR THE CHIEF:

2 Incls
as

Copy furnished
FC/DASA

Paul S. Bringle
PAUL S. BRINGLE
Colonel, USAF
Asst Chief of Staff

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NWER ACTIVE SUBTASKS

<u>NWER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
01.001	Project BANSHEE	DASA
01.002	High Altitude Nuclear Explosion Effects	DASA
01.003	Airblast Investigations for DASA	DASA
01.004	Nuclear Air blast Publication	DASA
01.005	Studies of Dust-Laden Air Flow	DASA
01.006	High Altitude Instrumentation Platform	BRL
01.007	Pressure and Flow Patterns in Aircraft and Semi-Mobile Missile Revetments	BRL
01.009	Solution of General Nuclear-Weapons Effects Problems	BUWEPS
01.010	Vulnerability of Airfoils to Blast	ASD
01.011	Vulnerability of Advanced Vehicles to Blast	ASD
01.012	Vulnerability of Foreign Aircraft	ASD
01.013	Vulnerability of Airfoils and Missiles to Blast at Simulated High Altitude	BRL
01.016	Project PAPOOSE	DASA
01.017	Generalization of Aircraft Response Studies	BUWEPS
01.019	Blast Effects on Re-entry Vehicles	DASA
01.020	DOMINIC Fireball Photography Data Reduction	NOL
02.023	Experimental Dynamic Drag Test Facility	DASA
02.027	Flying Debris	DASA
02.042	Effects of Topography on Dynamic Pressure Resulting from Larger HE Detonations	BRL
02.045	Effects of Topography on Dynamic Pressure	DASA
02.046	Study of Arctic Effects on Aircraft	DASA
02.047	Prediction of Dynamic Pressure Impulse	
02.049	Airblast Phenomena from Sub-Kiloton Yields of HE and Nuclear Detonations	BRL
02.050	Vulnerability of Radar and Communications Antennae	DASA
02.052	Nuclear Weapons Effects on Advance Types of Parked Missiles	ASD
02.053	Blast Effects on Missile Bodies	BRL
02.058	Military Equipment Damage Studies	BRL
02.061	Nuclear Weapons Blast Phenomena Publications	NOL
02.062	Response of Earth Wall Retaining Structural Materials	ERDL
02.063	Airblast Instrumentation Developments	BRL & ASD
02.064	Fundamental Research in Blast Effects	NOL
02.065	General Support Costs for Large HE Tests Including Modernization of Instrumentation	DASA

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DOWNGRADED AND DECLASSIFIED AT 12 YEAR INTERVALS;
 DECLASSIFIED AT 12 YEARS.
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<u>NWER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
02.066	Airblast Phenomenology	DASA
	Hardening of Mobile Missile Systems (Feasibility Study)	DASA
03.001	Thermal Injury Caused by Nuclear Warheads (I) - Oculo-Visual Effects	NML
03.002	Chorioretinal Burns in Man and Rabbit	DASA
03.003	Thermal Radiation Damage to the Eye	SAM
03.006	Research and Reports on Photochromic Materials Which may be used as Eye Protective Devices	SAM
03.007	Application of Cell-Free Spleen Extracts for Use in the Treatment of Radiation Sickness	NMRI
03.008	Studies of the Effects of Massive Acute Radiation Doses on the Sensory and Motor Functions of Rhesus Monkeys	WRAIR
03.009	Metabolic Changes in Humans Following Total Body Irradiation	DASA
03.010	Post-Irradiation Syndrome in Humans	DASA
03.011	Effects of Whole Body Irradiation on Immunologic - Tolerance of Bone Marrow	DASA
03.012	Mechanism of Blast and Shock Injury	DASA
03.027	Nuclear Warfare Aspects of Whole Body Ionizing Radiation	NRDL
03.029	Sustained Observations of Occurance of Latent Effects in Burros Surviving 300-500r Total Body Gamma Radiation	SAM
03.030	Effects of Total-Body Irradiation	SWC
03.031	Studies in Physiology, Pathology and Treat- ment of Burns	BUMED- (NMRL)
03.032	Toxic Factors in Thermal Injuries	DASA
03.033	Serum and Skin Factors Involved in Thermal Injury	DASA
03.034	Biochemical Effects of Thermal Stress	DASA
03.035	Hazard evaluation in multiple Mammalian Species	BUSHIPS (NRDL)
03.036	The Measurement of Ionizing Radiation	BUMED (NMRI)
03.037	Walter Reed Combined Radiation Program	WRAIR
03.038	Biological Hazard of Fallout	WRAIR
03.040	Fallout Hazard Studies in Humans	LANDSTUHL
03.048	Central and Peripheral Heating of the Body	DASA
03.049	Central Nervous System Effects, Biological Dosimetry	DASA
03.050	Combined Irradiation Project	DASA
03.055	Oculo Visual Effects	BUWEPs (AMAL)

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<u>NWER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
03.058	Study to Determine the Variability of the Absorbance of Human Retinal Pigment	ASD
03.061	Subthreshold Retinal Burn Effects	ASD
03.062	Thermal Injury Caused by Nuclear Warheads (II)	BUSHIPS (NML)
03.063	Thermal Injury and Protective Clothing	NMRI+AMAL
03.064	AFRRI Research Program	DASA
03.065	Personnel Portection Projects Test Plans for Underwater Shock Effects Test Series	DYMB
03.066	Radiation Protection	SAM
03.067	Radiation Hazards in Operational Employment of Nuclear Weapons	SAM
03.068	Methods of Rapid Diagnosis and Prognosis in Acute and Chronic Radiation Injury	SAM
03.069	Physiological Effects of Ionizing Radiation	SAM
03.072	To Study in Man the Effects of 250-300r Total Body Irradiation	SAM
03.074	Biological Effects of Total and Partial Body Irradiation at Cellular, Organ and Total Organism Levels	WRAMC
03.075	Synergistic Effects of Mixed Radiation	SWC
03.076	Biological Effects of Plutonium	SWC
03.077	Total Body Radiation	WRAMC
03.079	Flashblindness and Chorioretinal Burns in Persons Using Optical Instruments	WRAMC
03.081	Summary of all Flashblindness and Retinal Burn Data	ASD
03.082	IR Combined with Trauma	WRAMC
03.084	Dosimetry of Neutrons and Gamma Radiation	WRAMC
03.085	Biological Effectiveness of Mixed Ionizing Radiation in Rodents	WRAMC
03.086	Bone Marrow Project	BUMED (REEL)
03.087	Biological Dosimetry of Radiation Injury	BUMED (REEL)
03.089	RBE of Different Ionizing Radiation	SAM
03.090	Combined Effects	DASA
03.091	Ecological Aspects of Fission Products Metabolism	DASA
03.101	Immediate Ultramicroscopic Changes in Lymphocytes of the Intestinal Wall	DASA
04.011	Overall EM Blackout Model and Publications	DASA
04.012	Pinwheel Studies	CRL
04.014	Communications Effects Simulation	ERDL (Formerly SRDL)

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<u>NWER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
04.015	Effects on Fuze Function	DOFL
04.017	VLF Ionosphere Model	NEL
04.021	Incoherent Scatter	CRL
04.023	Whistler/Sferic Propagation	CRL
04.042	Aurora Studies - Low Frequency Noise	CRL
04.044	Auroral Conjugate Studies	CRL
04.045	Electron Density Probes	CRL
04.046	Radar/Visual Aurora Correlation	CRL
04.052	Airborne Laboratory Observations	CRL
04.053	Low-Frequency Sounder	CRL
04.054	Gyro-Interaction Experiments	CRL
04.061	Riometers	CRL
04.063	Fejer-SumI Experiments	DASA
04.064	Fejer-SumI Experiments	DASA
04.065	Optical Equipment and Experiments	CRL
04.072	Geomagnetic Research	ERDL (former- ly SRDL)
04.091	EM Pulse Mechanism Studies	ERDL (former- ly SRDL)
04.092	EM Pulse Simulator	CRL
04.094	EM Pulse Studies	DASA
04.095	Power System Response	DASA
04.097	EM Pulse Phenomenology	SWC
06.005	New Type Detectors	DOFL
06.007	Detection of Gamma in the Presence of Neutrons	NDL
06.010	Cross Section Measurements	NDL
06.011	Spectral Characteristics of Secondary Gamma	BUSHIPS (NRDL)
06.012	Radiological Phenomena in High Overpressure Areas	SWC
06.013	Radiation environments as a Function of Altitude	SWC
06.014	Pulse Radiation Measurements	DOFL
06.015	Pulsed Photons	DOFL
06.026	Initial Gamma Spectrograph	NDL
06.027	Magnetic Neutron Spectrograph	BRL
06.028	Development of Gamma and Neutron Dose Rate	ERDL (former- ly SRDL)
06.029	Calorimetric Dosimetry	BUSHIPS(NRDL)
06.030	Radiation Effects on Materials	NDL
06.031	Radiation Effects on Explosives	PA
06.032	Radiation Effects on Pyrotechnics	PA
06.033	Radiation Transport	DOFL
06.038	Chemical Inhibitors	BRL
06.039	New Neutron Detector Techniques	NDL
06.041	Fast Neutron Spectrograph	ERDL (former- ly SRDL)

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<u>NER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
07.001	Electromagnetic Effects Simulation	ERDL (formerly SRDL)
07.002	Phenomenology at Extreme Altitudes	SWC
07.003	Radiation Transport Phenomena	SWC
07.006	Artificial Ionization	CRL
07.007	Probe Development	CRL & BRL
07.008	Study of HARDTACK Radar Data	DASA
07.009	Electron Loss Simulation	ERDL (formerly SRDL)
07.010	Atmospheric Ion Studies	DASA
07.011	High Altitude Effects Text	DASA
07.012	Electron Loss Processes	DASA
07.013	Ionospheric Measurements	DASA
07.014	Control of Electron Density Decay	CRL
07.017	Two-D Hydrodynamic Calculations	BRL
07.018	Argus Bomb Debris Analysis	SWC
07.019	Magnetic Field Measurements	SWC
07.020	Military Effects of Nuclear Weapon Phenomenology	SWC
07.024	EM Consultation Assistance Program	DASA
07.025	Special Computer Program Analysis	DASA
07.026	Phenomenology	SWC
07.028	EM Blackout Ionization Theories	DASA
07.029	Electron Concentration Irregularities	DASA
07.031	Input-Output Experiment	ONR
07.032	Exploitation of Old and New Data	DASA
07.033	Beta Beta	DASA
07.034	Delta Gamma	DASA
07.035	Analysis of Communications Outages	DASA
08.001	Advanced Neutron Heating Studies	PA
08.002	Vulnerability to Blast and Thermal Effects of Advanced Flight Vehicles	PA
08.003	Tailored Bomb Debris	SWC
08.004	Tailored Neutrons & Gammas	SWC
08.005	Storage Properties of Photographic Emulsions	DASA
08.006	High Altitude Effects Compendium	DASA
08.007	Satellite Vulnerability	PA
08.008	Integrated Effects	BRL
10.001	Laboratory-Scale Studies (HYDRA)	BuShips (NRDL)
10.002	HYDRA II Field Tests	BuShips (NRDL)
10.003	Fallout Prediction for Fractional-Kiloton Weapons	NDL
10.006	Cold Weather Decontamination	NDL
10.007	Development of a Fallout Model for Water Surface Bursts	BuShips (NRDL)
10.009	Maximum Dose Rates In and Near Nuclear Bomb Craters	NDL
10.013	Fallout Data Comparison, Evaluation, and Presentation	NDL

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<u>NWER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
10.016	Predictions for Very High Yields	DASA
10.028	Shipboard Gamma Fields	BuShips (NRDL)
10.029	Terrain Effects on Fallout	SRDL
10.030	Radiation Characteristics	BuShips (NRDL)
10.031	Accidents	SWC
10.034	Effects of Low Yield Water Bursts on Coastal Populations	BuShips (NRDL)
10.055	Plutonium Contamination Studies	NDL
05.001	Induced Activity in Soils	DASA
11.001	Radiation Shielded Vehicle	BRL
11.005	Shielding Effectiveness of Ships and Structures	BuShips (NRDL)
11.008	Gamma Shielding Structures	NDL
11.011	Neutron Transport	NDL
11.021	Radiation Penetration Studies	DASA
11.022	Radiation Transport Engineering Studies	NDL
11.024	Experimental Cross Sections	DASA
11.025	Neutron Cross Sections	NDL
11.026	Fundamental Studies of Shelter Shielding	BuY&D (NCEL)
11.027	Prediction Systems for Determining Induced Activity in Soil	NRDL
11.031	Enclosure Shielding Study	BRL
11.032	Shielding Characteristics of Combat Vehicles	NDL
11.033	Shielding Handbook	DASA
11.034	Experimental Cross Section of Oxygen & Nitrogen	NDL
11.037	Initial Radiation Shielding in Complex Geometries	DASA
11.038	Structure Shielding	NRDL
11.039	Nuclear Cross Section Evaluation Program	DASA
12.001	Sky Background	AFCLR
12.002	Thermal Ablation Kill	ASD
12.005	High Temperature Studies	QMR&E
12.006	Thermal Ignition Studies	NRDL
12.009	Effects of Thermal Radiation on Materials	NML
12.015	Thermal Phenomena Studies	ERDL (formerly SRDL)
12.017	Thermal Atmospheric Scattering Studies	ERDL (formerly SRDL)
12.023	Protective Clothing from Thermal Radiation	QMR&E
12.024	Fire Spread Analysis	DASA
12.025	AEC Data Evaluation	DASA
13.001	Studies of Underground Structures in the Blast Generator	WES
13.003	Closures for Hardened Protective Hangers	SWC
13.004	Effects of Structure Movement on Contents	SWC
13.009	Response of Soils to Dynamic Loads	WES
13.010	Dynamic Bearing Capacity of Soils	WES

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<u>Short Title</u>	<u>Reporting Agency</u>
13.011 Dynamic Properties of Materials	WES
13.012 Model Studies	WES
13.014 Attenuation of Airblast in Entranceways to Protective structures	WES
13.015 Generation and Propagation of Underground Shock	BRL
13.016 Experimental Investigation of Soil-Structures Interaction	BRL
13.017 Instrumentation Development for Ground Shock Studies	BRL
13.018 Model Studies of Soil-Structure Interaction	Buy&D (NCEL)
13.019 Basic Dynamic Properties of Various Structural Materials	Buy&D (NCEL)
13.020 Fundamental Behavior of Soils Under Time-Dependent Loads	Buy&D (NCEL)
13.021 Basic Free-Field Studies	SWC
13.022 Dynamic Loads on Layered Systems	SWC
13.023 Locking Media in Two Dimensions	SWC
13.024 Rock Dynamics	SWC
13.025 Photoelastic and grid Methods	SWC
13.026 Photoelastic Studies of Structure Medium Interaction	SWC
13.028 Study for the Analysis and Design of Domes, Arches and Shells	SWC
13.029 Theoretical and Experimental Investigation of Silo and Tunnel Linings	SWC
13.032 Studies of Side-Wall Friction and Wave Propagation in Experiments on Real Soils	SWC
13.033 Experimental Studies on On-Structure Shear Gage and On-Structure Self-Recording stress gage	SWC
13.036 Handbook on Underground Shock Phenomena and Effects from Nuclear Explosions	DASA
13.037 Stress Propagation in Soils	DASA
13.039 Soil-Structure Interaction Gage Development and Testing	WES
13.040 Shock Isolation Materials	DASA
13.049 A Study of Shock-Isolation Systems	SWC
13.057 Design of a Facility for Laboratory Studies of the Effects of Dynamic Loads on Soils and Buried Structures	DASA
13.062 Resistance of Structural Shapes	Buy&D (NCEL)
13.068 Air Force Shock Tube Operations	SWC
13.069 Air Force Shock Tube Operations, Instrumentation	SWC
13.072 Shock Spectra Correlation	DASA
13.074 Static and Dynamic Arching of Soils	WES
13.075 Air Ground Coupling	SWC
13.077 Feasibility Study of Utilizing Explosive Sources to Study Dynamic	DASA

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<u>Number</u>	<u>Short Title</u>	<u>Reporting Agency</u>
13.078	Air Shock Theory in the Field and Under Laboratory Conditions	SWC
13.080	Dynamic Properties of Materials	SWC
13.085	Compilation of Airblast Data	BRL
13.086	Study of the Design and Analysis of Foundations	SWC
13.087	Dynamic Loading of Soils of Buried Structures with Shock Tube or HE	SWC
13.089	Application of Digital Techniques to Response of Underground Structures	DASA
13.092	Close-in Effects of Nuclear Weapons	DASA
13.096	Response of Domes, Arches, and Other Shells to Dynamic Loads	SWC
13.097	Large Doors for Aircraft Shelters	SWC
13.098	Base Concepts of Structure Medium Interaction	SWC
13.100	Simplified Design Method for Domes, Arches, Curved Beams, and Rings	SWC
13.101	Deep Beams and Two-Way Slabs	SWC
13.103	Discontinuities in Structures	SWC
13.104	Dynamic Strength of Columns	DASA
13.105	Concrete Bond and Shear Strength	DASA
13.106	Dynamic Model Response Similitude	DASA
13.108	Response of Blast Closure Devices	WES
13.109	Structures in an Arctic Environment	WES
13.110	Dynamic Soil Testing, New Methods and Devices	SWC
13.111	Blast Patterns in Tunnels and Chambers	BRL
13.112	High Pressure Diffraction and Drag	BRL
13.113	Air Force Shock Tube Facility, Structure-medium Interaction	SWC
13.114	Dynamic Load Testing of Prestressed Concrete Beams	BuY&D (NCEL)
13.115	Blast Resistance of Structural Connections	BuY&D (NCEL)
13.116	Dynamic Shear Studies on Reinforced Concrete Beams	BuY&D (NCEL)
13.117	Blast Closure Valve Tests	BuY&D (NCEL)
13.120	Reliability Study of Motion Measurements	WES
13.121	Gage Development and Instrumentation Techniques	BRL
13.122	Development of a Miniaturized Velocity Gage	SWC
13.123	Strain Gages	SWC
13.125	Instrumentation Placement Techniques	SWC
13.127	Feasibility and Model Study of Variable Stiffness Response Motion Mockup	DASA
13.128	Model Studies of Large Vented Openings	BuY&D (NCEL)
13.129	Ground Motion Effects on Structure Contents	BuY&D (NCEL)
13.130	Feasibility Study for a Large Blast Simulator	DASA
13.131	Precursor adaptor for Shock Tube	DASA
13.132	Dynamic Tension Testing Machine	BuY&D (NCEL)

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<u>WER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
13.133	Soil Behavior Studies	SWC
13.134	Experimental Study on Domes, Shells and Arches I	SWC
13.135	Experimental Study on Domes, Shells and Arches II	SWC
13.136	Free Field Stress Cell	SWC
13.137	Program for Evaluating Compression in Soil and Rock	SWC
13.138	Large Doors for A/C Shelters	SWC
13.141	Air-Blast and Ground-Shock in an Arctic En- vironment	WES
13.142	Use of Nuclear Explosives for Large-Scale Excavations	WES
13.143	Structural Failure from Ground Motion	BuY&D (NCEL)
13.144	Free Field (Predictions)	SWC
13.145	Free Field (Behavior of Various Media)	SWC
13.147	Free Field Phenomena Effects in Soil & Rock	DASA
13.148	Investigation of Structure-Medium Interaction	SWC
13.152	Feasibility of Fiberglass Reinforcement for Concrete	WES
13.153	Shock-Absorbing Concrete	WES
13.154	Protective Shelter Equipment and Appurtenances	NCEL
13.157	Behavior of Structural Elements and Appurtenances	SWC
13.158	Behavior of Underground Structures	SWC
13.159	Air Free-Field and Miscellaneous Above-Ground Structures	SWC
13.165	Dynamic Properties of Material	WES
13.166	Dynamic Properties of Material	SWC
13.167	Effects of Structure Movement on Contents	SWC
13.172	State of the Art	SWC
13.173	Tests in Support of 13.145 and 13.146 in High Overpressure Regions in WES Simulator	WES
13.174	Tests in Support of AFSWC 13.148 in High Pressure Blast Simulator	WES
13.175	Test in Support of 13.158 in WES High Pressure Simulator	WES
13.178	Stress Wave Transmission Study	DASA
14.001	Bottom Reflection	BuWeps (NOL)
14.002	Refraction	BuWeps (NOL)
14.005	High Gravity Tank	BuWeps (NOL)
14.006	High Gravity Tank	BuWeps (NOL)
14.009	Equipment Damage	BuShips (DTMB)
14.011	Damage Prediction	DASA
14.016	Effects on Sonar	DASA
14.017	Propagation	BuWeps (NOL)
14.018	Shallow Water Propagation	BuWeps (NOL)

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<u>Number</u>	<u>Short Title</u>	<u>Reporting Agency</u>
14.020	Surface Waves Resulting from Deepwater Explosion	WES
14.023	Underwater Handbook, Part I	DASA
14.024	Underwater Handbook, Part II	DASA
14.025	Surface Reflection	BuWeps (NOL)
14.026	Supporting Research	ONR
14.036	Application of Shock Wave Mitigation Techniques	WES
14.037	Water Shock Reflection Properties	WES
14.038	Theory of Generation of Waves	ONR
14.039	Field Studies	ONR
14.041	Impulsively Generated Wave Studies	ONR
14.042	Wave Run-Up	ONR
14.043	Analysis of Blast and Wave Effects on Waterfront Structures	BuY&D (NCEL)
14.044	Underwater Nuclear Explosion Phenomenology	BuWeps
14.045	Bubble Phenomena	BuWeps
14.046	UW Nuclear Explosion Phenomenology	BuWeps
14.047	Blast Simulation	BuShips (NOL)
14.049	Airblast Effects on Ship Structure	BuShips
14.050	Shock Tube Studies	BuShips
14.051	Damage Predictions	BuShips
14.052	Airblast Effects on Exposed Equipment	BuShips
14.054	Basic Ship Response	BuShips
14.055	Effects of Boundaries	BuShips
14.056	Ship Operational Impairment Evaluation	BuShips
14.057	Simulated Nuclear Tests	BuShips
14.062	Prediction Methods for Airblast Damage	BuShips
14.063	HE Tests of Model Subs	BuShips
14.064	Relative Significance of Phenomena for Ship Damage	BuShips
14.066	Fundamental Shock Studies	BuShips
14.067	Underwater Storage Systems	WES
14.068	Personnel Response to Ship Shock	BuShips
14.069	Development of Instruments	BuShips
14.079	AD HOC Investigations	DASA
02.25	Blast HE Fuel	BuShips
02.14	Blast Resistant Smoke Pipes	BuShips (DTMB)
15.013	X-Ray Transport	SWC
15.014	Extreme Hardening	SWC
15.015	Low Flux Effects	SWC
15.016	Low Flux Simulation	SWC
15.017	Low Flux Instrumentation	SWC
15.018	Hydrodynamic Theory and Experiments	SWC
15.020	Electron Beam Studies	SWC
15.021	Late Time and Reentry Effects	SWC
15.022	Negative Equation of State	SWC
15.024	Fracture Theory	SWC

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<u>NUMBER #</u>	<u>Short Title</u>	<u>Reporting Agency</u>
15.025	Equation of State	SWC
15.026	Structural Response	SWC
15.027	Optimization of R/V Material	SWC
15.028	Structural Response Theory	ASD
15.029	Advanced Structures Code	SWC
15.030	Effects on Nose Cones	SWC
15.031	"G " Loading	ASD
15.032	Countermeasures	SWC
15.033	Advanced Weapons Systems Vulnerability and Hardening	ASD
15.034	Satellite Vulnerability	PA
15.035	Instrumentation	SWC
15.037	Simulation Support	DASA
16.001	Simulation Studies and Instrumentation	DOFL
16.002	Correlation Studies	DOFL
16.003	Studies to Improve Radiation simulation Equipment and Techniques	OHR
16.004	Investigation of New Simulation Devices and Techniques	DASA
16.005	Study of Basic Mechanism of Transient Radiation Effects	ONR
16.006	Mechanism of Radiation Effects Upon Matter	ERDL (former-ly SRDL)
16.007	Transient Effects Physics	DOFL
16.009	Response of Electronic Piece Parts and Materials to Nuclear Radiation	ERDL (former-ly SRDL)
16.010	Research and Development on Effects of Radiation on Electronic Equipment and Systems	BuWeps
16.011	Theoretical and Experimental Analysis of Radiation Effects on Electronic Sub-Systems and Systems	DOFL
16.012	Radiation Effects on Electronic Components and Circuits	DOFL
16.013	Investigation of Nuclear Radiation on Communications and Combat Surveillance Equipment	ERDL (former-ly SRDL)
16.014	Radiation Effects on Fire Control Assemblies	FA
16.015	The Prediction of Transient Nuclear Radiation Effects in Electronics	AFSWC
16.016	Transient Radiation Effects on Shipboard Electronic Equipment	NRDL
16.017	TRER Handbook for Design Engineers	DASA
16.020	Displacement Effects and IR Detector Vulnerability	HDL & AFSWC
16.021	Radiation Effects Study of Digital Computer Circuits and Components	AFSWC

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NWER #

Short Title

Reporting Agency

16.023

Analysis of Probable Electromagnetic Pulse
Effects on ICBM Missile Sites and Aerospace
Systems

AFSWC

16.024

Circuit Analysis Techniques

AFSWC

16.026

Transient Radiation Kill Radius Calculations

AFSWC

16.101

TREE Analysis and Correlation Studies LITTLE
FELLER II

DASA

~~CONFIDENTIAL~~

Subtask No.

Sub-Task Title:

Service Project No.:

Directing Agency:

Laboratory:

Contractor:

Project Officer:

Telephone No.:

Principal Investigator:

Telephone No.:

The CLASSIFICATION of the information on this page is:

OBJECTIVE OR WORK STATEMENT:

PROGRESS & RESULTS:

REPORTS PREPARED:

Interim Reports:

Estimated Date of Final Report:

PLANS FOR NEXT PERIOD:

1. Subtask No. - Self Explanatory (SE)
2. Sub-Task Title - SE
3. Service Project No. - SE
4. Directing Agency - For service managed subtasks enter the bureau, technical service or equivalent having management responsibility for the service. For DASA managed subtasks enter "DASA".
5. Laboratory - The government laboratory performing the research or managing the contract.
6. Contractor - Profit or Non-profit organization holding a contract for research under the subtask.
7. Project Officer - Indicate here the officer or civilian supervising the subtask and stationed at the government laboratory where the research is being conducted or who is managing the contract. For DASA managed work, the name of an officer or civilian in Hq, DASA, should be inserted.
8. Principal Investigator - The technical man actually performing the research either at the government laboratory, in civilian industry or an educational institution.
9. Classification - The semi-annual progress report will be classified by DASA. However, pending compilation of summary each writer should classify his own report for protection in transit.
10. Objective or work statement - SE
11. Progress and Results - Include period from end of last report to 31 December 1962. If this is a new report, progress and results should be reported from time funds for the research were first received from DASA but not prior to 1 July 1960.
12. Reports Prepared - Record any technical reports that have been prepared. This does not include these semi-annual progress reports.
13. Interim Reports - Date of next interim technical reports, if any.
14. Estimated Date of Final Report - SE
15. Plans for Next Period - Reporting period is from 1 July - 31 December 1962. Detail plans for next period (through 30 June 1963).